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A new species of *Aschersonia* (*Clavicipitaceae*, *Hypocreales*) from China

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Abstract — A new species of the *Clavicipitaceae*, *Aschersonia macrostromatica*, collected from Hainan Province of China is described and illustrated. This fungus differs from other related *Aschersonia* species in its brownish-yellow, globose, tubercular, large stromata and absence of ostiolar openings, paraphyses, and hypothallus.

Key words — morphology, taxonomy, entomogenous fungus

Introduction

The genus *Aschersonia* Mont. (*Clavicipitaceae*, *Hypocreales*) was established and typified with *A. taitensis* Mont. from the tropics (Montagne 1848). Forty-four species are currently accepted in *Aschersonia* (Chaverri et al. 2005). The genus is characterized by pycnidia that range from cupulate depressions to locules totally immersed in pulvinate to globose stromata that are typically brightly colored, fleshy and unicellular, fusiform, hyaline phialoconidia that are extruded from the locules in brightly colored waxy cirrhi (Petch 1921, 1925, Mains 1959). The only known teleomorphs are in the genera *Hypocrella, Moelleriella,* and *Samuelsia,* all members of the *Clavicipitaceae* (*Hypocreales*, Chaverri et al. 2008). All species are parasites of scale insects.

During an investigation on the diversity of microfungi in Hainan Province of China, an interesting entomogenous fungus was found in Xinglong Tropical Botanical Garden. The general morphological characteristics of globose pycnidia formed in hemispherical or cushion-shaped (pulvinate) stroma, slender branched conidiophores, hyaline, mostly fusoid, and smooth one-celled conidia and parasitism on homopteran insects fit the generic concept for *Aschersonia* well. The short fusoid conidia and brownish-yellow tubercular

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stromata, and the absence of paraphyses and hypothallus are the main features to distinguish this fungus from other known species in the genus.

Materials and methods

The specimens of the species studied were deposited at the Mycology Herbarium of Fujian Agricultural and Forestry University (MHFAFU). Morphological characters of three collections were studied at different developmental stages. The microscopic features and measurements of the fungus were examined with the aid of a light microscope and a stereoscope by the method presented by Qiu et al. (Qiu et al. 2009). Sections of the conidiomata were mounted in water on a slide. Twenty pycnidia and specimens were measured using an ocular micrometer. Special colour terms are from Kornerup & Wanscher (1967).

Taxonomy

Aschersonia macrostromatica Jun Z. Qiu & Xiong Guan, **sp. nov.** Figs. 1a–f

MycoBank MB 514149

Stromata magna, hypothallus nullus, 2–5 mm lata, 1–4 mm alta, hemisphaerica, flava, subglobosa, cerebriformia, superficie laevia, aliquantum nitida, in vivo carnosa, in sicco dura, convoluta vel tuberculata, brunneola, superficie aliquot orificiis ut punctis minutis visibilibus praedita. Pycnidia immersa in stromatibus, irregularia, 86–172 µm alta, 66–106 µm lata, aparaphysata. Conidia hyalina, laevia, fusiformia, unicellularia, 5–8.2 × 1–1.6 µm, cirrhi mucosi.

Type — J.Z. Qiu & X. Guan 334, MHFAFU 20804 (**holotype**) on *Coccidae*; Xinglong Tropical Garden, Hainan Prov., Wanning County, Xinglong, China, alt. 300 m, 26.X.2008.

Etymology — Refers to the large stroma.

Teleomorph: None known.

Stromata large, lacking a hypothallus, 2–5 mm diam, 1–4 mm high, hemispherical, yellow, somewhat globose, cerebriform, surface smooth, somewhat glossy, fleshy when fresh but hard when dry, convoluted or tuberculate, 8–45 ostiolar openings as minute dots visible over the surface, covered with conidial masses brownish-yellow. Pycnidia immersed in stroma, irregular in shape, 86–172 × 66–106 µm. Paraphyses absent. Conidia hyaline, smooth, fusiform, unicellular, cirri slimy, 5–8.2 × 1–1.6 µm.

Comments—*Aschersonia macrostromatica* is characterized by large, globose, tubercular, brownish-yellow stromata, ostiolar openings, small conidia, and lack of paraphyses and hypothallus. Four species of *Hypocrella* — i.e.,

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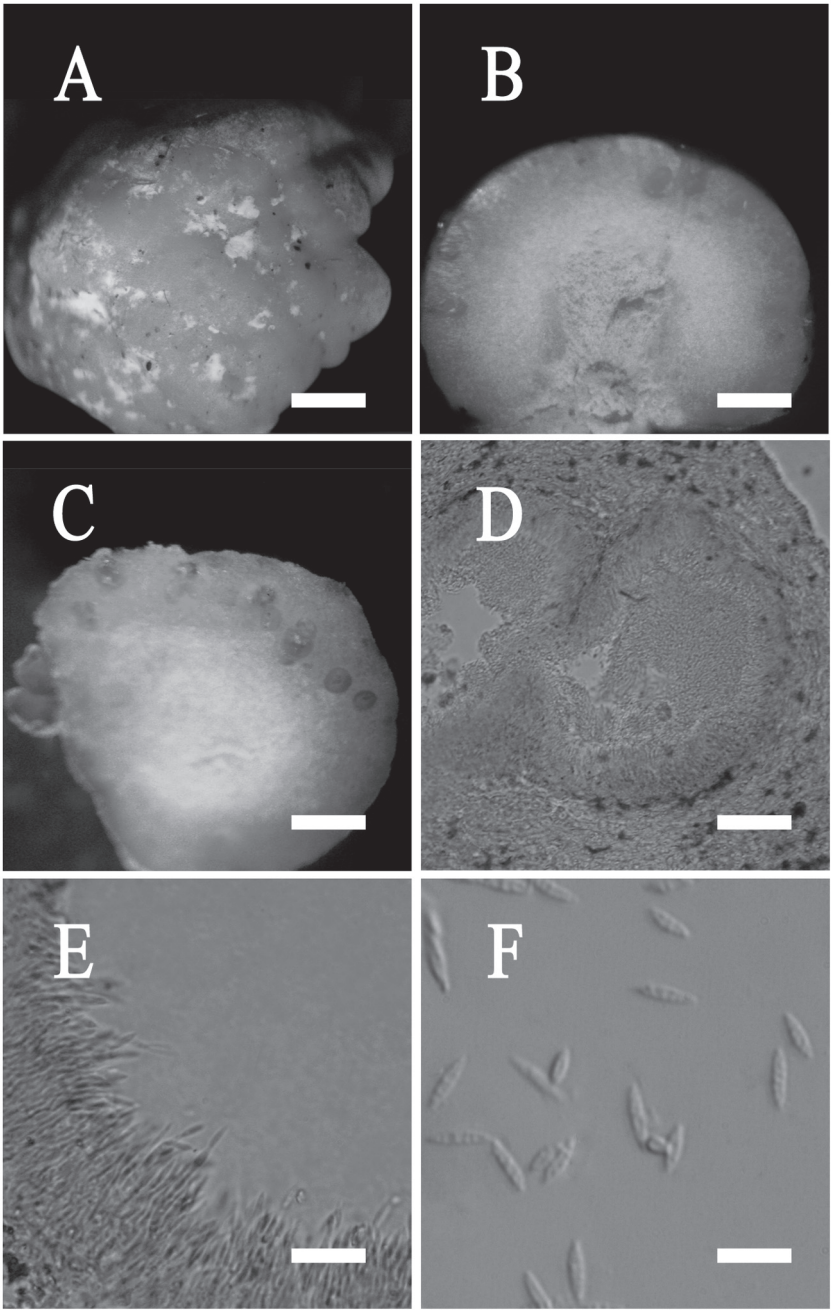
Fig.1 *Aschersonia macrostromatica*. A: Stroma; B: Cross-section of stroma showing stylet hole; C: Section of stroma; D: Globose conidioma with hymenium and conidia; E: Phialides and conidiogenous cells extending above the hymenium; F: Conidia.

Scale bars: A,B,C = 1 mm; D,E = 50 µm; F = 10 µm.


A
B
C
D
E
F

H. africana Hywel-Jones & Samuels from Liberia, *H. gaertneriana* Möller from tropical South America (Brazil, French Guiana, Venezuela), *H. schizostachyi* Henn. from Southeast Asia (Philippines, Thailand), and *H. macrostroma* P. Chaverri & K.T. Hodge from Bolivia and Costa Rica — also have large stromata and grow on scale insects (Chaverri et al. 2005, 2008). Although related to these four species, *A. macrostromatica* is distinguished by having markedly smaller (ca. 2–5 mm diam) stromata.

Aschersonia macrostromatica has very small conidia (5–8.2 × 1–1.6 μm) that are similar in size to those of *Aschersonia australiensis* Henn. and *Aschersonia minutispora* Hywel-Jones & Mongkolsamrit (Petch 1921, Mongkolsamrit et al. 2009). However, the significant difference separating *A. macrostromatica* from *A. australiensis* and *A. minutispora* are the larger stromata and the existence of a hypothallus and paraphyses in the latter two species. Furthermore, *A. macrostromatica* stromata are large (up to 5 mm diam) for *Aschersonia* and larger than those of *A. minutispora* (up to 1.5 mm diam) and *A. australiensis* (up to 2 mm diam).

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